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MERL-1465

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
Xie, et al.

: Art Unit: 2623

:

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Serial No: 10/734,451

: Examiner: Unknown

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Filed: December 12, 2003

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Title: UNSUPERVISED LEARNING OF VIDEO STRUCTURES IN VIDEO USING  
HIERARCHICAL STATISTICAL MODELS TO DETECT EVENTS

EXPRESS MAIL mailing label number:  
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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Pursuant to 37 C.F.R. §1.56(a), Applicant hereby cites the following documents (copies enclosed) listed on the attached copy of Form PTO-1449.

This Information Disclosure Statement is filed in accordance with the paragraph of 37 CFR §1.97 checked below:

X 1.97(b) This Information Disclosure Statement is filed:

- (1) Within three months of the filing date of a national application; OR
- (2) Within three months of the date of entry of the national stage of an international application; OR
- (3) Before the mailing of a first Office Action on the merits.

No fee or certification is required.

  1.97(c) This Information Disclosure Statement is filed after the period specified in paragraph (b) above, but before the mailing date of either:

- (1) A Final Action under 37 CFR 1.113; OR
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AND is accompanied by either:  
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the Certification under 37 CFR  
1.97(e) as set out below; OR

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1.17(p) .

1.97(d) This Information Disclosure Statement is filed  
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- (1) the Certification under 37 CFR 1.97(e) as  
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- (2) Petition is hereby made under 37 CFR  
1.97(d) for consideration of this  
Information Disclosure Statement; AND,
- (3) Authorization to charge the petition fee  
of \$130.00 as set out in 37 CFR 1.17(i) .

If this Information Disclosure Statement is being filed  
under 37 CFR 1.97(c) or 1.97(d), the undersigned Attorney hereby

certifies that:

- each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing date of this Statement;
- or
- no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, or to the knowledge of the undersigned Attorney after making reasonable enquiry, was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing date of this Statement.

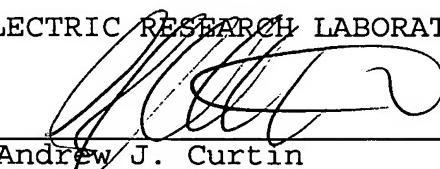
MERL-1465

Authorization is hereby given to charge the indicated fee(s) to Deposit Account No. 50-0749.

Please charge any additional fee due for this paper to Deposit Account No. 50-0749.

Respectfully submitted,

MITSUBISHI ELECTRIC RESEARCH LABORATORIES

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Enclosures

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Form PTO-1449  
(modified 2/91)U.S. DEPT OF COMMERCE  
Patent and Trademark OfficeAttorney Docket Number:  
MERL-1465Serial Number:  
10/734,451**INFORMATION DISCLOSURE CITATION**

(Use several sheets if necessary)

Applicant:  
Xie, et al.Filing date:  
December 12, 2003

Group art area:

**U. S. PATENT DOCUMENTS**

Examiner's Initial	Patent number	Date	Name	Class	Subclass	Filing date if appropriate
	5,828,809	Oct. 27, 1998	Chang et al.	386	69	

**FOREIGN PATENT DOCUMENTS**

	Document number	Date	Country	Class	Subclass	Translation	
						YES	NO

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

1.	Rabiner, "A tutorial on hidden Markov models and selected applications in speech recognition," Proceedings of the IEEE, Vol. 77, pp. 257-285, February 1989
2.	Wang et al., "Multimedia content analysis using both audio and visual clues," IEEE Signal Processing Magazine, Vol. 17, pp. 12-36, November 2000
3.	Xie et al., "Structure analysis of soccer video with hidden Markov models," Proc. International Conference on Acoustic, Speech and Signal Processing (ICASSP), 2002
4.	Xie et al., "Learning hierarchical hidden Markov models for video structure discovery," Tech. Rep. 2002-006, ADVENT Group, Columbia University, 2002, December 2002
5.	Clarkson et al., "Unsupervised clustering of ambulatory audio and video," International Conference on Acoustic, Speech and Signal Processing (ICASSP), 1999
6.	Langrognet et al., "A Gentle Tutorial on the EM Algorithm and its Application to Parameter Estimation for Gaussian Mixture and Hidden Markov Models," Technical Report, University of Berkeley, ICSI-TR-97-021, 1997
7.	Husmeier et al., "Bayesian Approaches to Gaussian Mixture Modelling," IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 20, No. 11, 1133-1142, 1998
8.	Yeung et al., "Time-constrained clustering for segmentation of video into story units," Proceedings International Conference on Pattern Recognition (ICPR), 1996
9.	Naphade et al., "Discovering recurrent events in video using unsupervised methods," Proc. Intl. Conf. Image Processing, 2002

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP .609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.